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LICHENS OF MOUNT MONADNOCK, NEW HAMPSHIRE

REGINALD HEBER HOWE, JUNIOR

MT. MONADNOCK (3166 feet), the typical representative of the monadnock type of worn-down mountain, is situated in the southeastern corner of Cheshire County, N. H., in the townships of Jaffrey and Dublin. It rises from well watered, rolling meadow and woodland country of the Transition zone, and though surrounded by several prominent hills, Gap (1900 feet) for example, it stands well isolated. The lower slopes of the mountain are covered with upland pastures and woodlots, while between the altitudes of 2000 and 3000 feet of the Sub-Canadian zone, its sides are well wooded with both coniferous and deciduous growths. Above 3000 feet the fauna and flora of its weathered, rounded, and rocky summit of resistant ledges are characteristic of the Canadian zone.

The lichens here listed were collected on April 5, 1906, about the base of the mountain on the Troy side, and on Bigelow Hill (1702 feet), and again on April 6, 1906, during one ascent to the summit of Monadnock itself.

Examples of all specimens listed are in my herbarium. For the verification of determinations of the genus Cladonia, and of several other specimens I am indebted to the kindness of Professor Bruce Fink of Grinnell, Iowa. To Mr. Rollin M. Gallagher I am also indebted for assistance in collecting.

1. **Ramalina calicaris fraxinea** Fr.— One specimen collected on a cherry tree, Bigelow Hill. Fertile.

2. **Ramalina calicaris fastigiata** Fr.—Common in the Transition zone. Found on cherry, elm, and on Bigelow Hill on a rock. Fertile.

3. **Ramalina calicaris canaliculata** Fr.— One specimen collected on an elm, Bigelow Hill. Fertile.

4. **Ramalina calicaris farinacea** Schaer.— One old wall had several patches on individual rocks. Transition zone. Sterile.

5. **Cetraria islandica** (L.) Ach.— Common in a reduced state on the ledges near the summit. Sterile.

6. **Cetraria ciliaris** (Ach.).— Not uncommon on pines near the base. Fertile.

7. **Cetraria lacunosa** Ach.— Common on pines on Bigelow Hill and about the base of the mountain; rare in the Sub-Canadian zone. Fertile.

8. **Cetraria oakesiana** Tuck.— Common in the Sub-Canadian zone on dead wood, yellow birch, oaks, and in one instance on rock. Sterile.

9. **Cetraria juniperina pinastri** Ach.— A few examples on a fallen spruce at timber line. Sterile.

10. **Evernia prunastri** (L.) Ach.— Common in the Transition zone, rare in the Sub-Canadian. Found growing on old roofs, stone wall, on *Parmelia perlata* on rock, and on deciduous trees. Sterile.

11. **Usnea barbata florida** Fr.— Uncommon on oaks on Bigelow Hill. Sterile.

12. **Usnea barbata florida rubiginia** Michx.— Bigelow Hill. Uncommon on oaks. A small but fairly typical specimen was collected on a rock, which proves that the coloring is not due to tannin or some other vegetable coloring matter in the bark of trees as has been suggested. Sterile.

13. **Usnea barbata ceratina** Schaer.— One untypical specimen collected on an oak on Bigelow Hill. Sterile.

14. **Alectoria jubata chalybeiformis** Ach.— A single specimen was collected on Bigelow Hill on the ground, growing with Cladonias.

15. **Theloschistes concolor effuse** Tuck.— Two small specimens on oak on Bigelow Hill.

16. **Parmelia perlata** (L.) Ach.— Common on rocks throughout the Transition and Sub-Canadian zone. Fertile in two instances.

17. **Parmelia cetrata** Ach.— Two examples on oak on Bigelow Hill.

18. **Parmelia crinita** Ach.— One example growing on moss on apple tree. Bigelow Hill. Sterile.

19. **Parmelia tiliacea** (Hoffm.) Floerk.— Common throughout Transition and Sub-Canadian zones. Collected on apple and yellow birch. Fertile.

20. **Parmelia borreri rudecta** Tuck.— Common in Transition and Sub-Canadian zones. Collected on yellow birch. Sterile.

21. **Parmelia saxatalis** (L.) Fr.— Not uncommon on rock. Transition zone. Fertile.

22. **Parmelia saxatalis sulcata** Nyl.— Common in both Transition and Sub-Canadian zones, growing on trees and rock. Sterile.

23. **Parmelia physodes** (L.) Ach.— Common throughout both Transition and Sub-Canadian zones, but more common in the latter. One example fertile. Collected on trees, and rarely on rocks.

24. **Parmelia olivacea** (L.) Ach.— Common in Sub-Canadian zone on yellow birch and oak. Fertile.

25. ? **Parmelia olivacea sorediata** (Ach.) Nyl.— One specimen collected on a white pine at the base of the mountain seems referable to this form.

26. **Parmelia caperata** (L.) Ach.— Common in Transition zone, more rarely met with in the Sub-Canadian. Collected both on rocks and on trees. Sterile. When found growing vertically on rocks this species has a deceptive shredded appearance.

27. **Parmelia conspersa** (Ehrh.) Ach.—Common throughout the two lower zones growing on rocks, replaced by the following species above timber line. Fertile.

28. **Parmelia centrifuga** (L.) Ach.— Not uncommon above timber line, confined mainly to the highest ledges. One example fertile.

29. **Physcia pulverulenta leucoleiptes** Tuck.— Common in the Transition zone on apple trees. Sterile.

30. **Physcia stellaris** (L.).— Common both on rocks and trees. Fertile.

31. **Physcia stellaris aipolia** Nyl.— One example collected on a rock. Bigelow Hill. Sterile.

32. **Physcia tribacea** (Ach.) Tuck.— One example collected on rock on Bigelow Hill. Fertile.

33. **Physcia obscura endochrysea** Nyl.— Common on yellow birch in the Sub-Canadian zone. Sterile.

34. **Pyxine sorediata** Fr.— Not uncommon on beech in Sub-Canadian zone. Sterile.

35. **Umbilicaria hyperborea** Hoffm.— Found both on the top of Bigelow Hill on boulders, and on the summit ledges of Monadnock.

36. **Umbilicaria muhlenbergii** (Ach.) Tuck.— Growing on pasture rock at the base of the mountain. Fertile.

37. **Umbilicaria dillenii** Tuck.— Common on ledges in the Sub-Canadian zone.

38. **Umbilicaria pennsylvanica** Hoffm.— Several specimens were collected on ledges at about 2500 feet elevation. Fertile.

39. **Umbilicaria pustulata papulosa** Tuck.—Common on pasture rocks and on the mountain ledges nearly to the summit. Fertile.

40. **Sticta amplissima** (Scop.) Mass.— Common on yellow birch on the mountain and also on rocks on Bigelow Hill. Fertile.

41. **Sticta pulmonaria** (L.) Ach.— Common in both Transition and Sub-Canadian zones on oaks and yellow birch, and in a few instances on rocks. Sterile.

42. **Nephroma tomentosum** (Hoffm.) Koerb.— One example on rock in Sub-Canadian zone. Fertile.

43. **Nephroma lævigatum** Ach.— One example on rock, Sub-Canadian zone. Fertile.

44. (?) **Peltigera canina** (L.) Hoffm.— On ground over ledges, not uncommon. Bigelow Hill. Sterile.

45. **Pannaria lanuginosa** (Ach.) Koerb.— Common on rocks in the two lower zones. Sterile.

46. **Ephebe solida** Born.— One example on rock, Bigelow Hill. Determined through the kindness of Dr. Herbert M. Richards of Barnard College, N. Y.

47. **Leptogium tremelloides** (L. fil.) Fr.— One example on rock, Sub-Canadian zone. Sterile.

48. **Placodium vitellinum** (Ehrh.) Noeg. & Hepp.— One example on old barn, Transition zone. Fertile.

49. **Lecanora rubina** (Vill.) Ach.—Common on rock on Bigelow Hill. Fertile.

50. **Lecanora subfusca** (L.) Ach.—One example on yellow birch. Fertile.

51. **Lecanora pallescens** (L.) Schaer.— One example on yellow birch in Sub-Canadian zone. Fertile.

52. **Pertusaria velata** (Turn.) Nyl.— One example on oak. Bigelow Hill. Fertile.

53. **Stereocaulon paschale** (L.) Fr.— Common on rocks in Sub-Canadian zone. Fertile.

54. **Stereocaulon tomentosum** (Fr.) Th. Fr.— One example on rock in Sub-Canadian zone. Fertile.

55. (?) **Cladonia cariosa** (Ach.) Spreng.— One example on ground, Sub-Canadian zone. "An unusual form to be studied further."— Fink.

56. **Cladonia pyxidata** (L.) Fr.— Common, Sub-Canadian zone.

57. **Cladonia fimbriata nemoxyne** (Ach.) Coem.— Two examples, mossy ground and old stump, Sub-Canadian zone.

58. **Cladonia fimbriata coniocræa** (Floerk) Wain.—One example on ground, Sub-Canadian zone.

59. **Cladonia squamosa** Hoffm.— One example on ground, Sub-Canadian zone.

60. **Cladonia furcata** (Huds.) Fr.— Common on ground, Sub-Canadian zone.

61. **Cladonia furcata (racemosa** Fl. or **pinnata** (Fl.) Wain. ?) — One example on ground, Sub-Canadian zone.

62. **Cladonia rangiferina** (L.) Hoffm.— Abundant on ground in all three zones.

63. **Cladonia rangiferina sylvatica** L.— Common on ground, particularly in the two lower zones.

64. **Cladonia amaurocræa** (Fl.) Schaer. (**furcata** ?).— Common on ground between ledges in Canadian zone.

65. **Cladonia uncialis** (L.) Fr.— One example on ground, Canadian zone.

66. **Cladonia boryi** Tuck.— Common on ground in a reduced condition in Canadian zone.

67. **Cladonia (Cornucopoides) coccifera** (L.) Willd.—Common on ground in Sub-Canadian zone.

68. **Cladonia coccifera pleurota** (Fl.) Schaer.— One example on ground, Sub-Canadian zone.

69. **Cladonia bacillaris** Nyl.— One example on fallen stump on ground, Sub-Canadian zone.

70. **Cladonia cristatella** Tuck.— Common in two lower zones.

71. **Graphis scripta** Ach.— One example on beech, Sub-Canadian zone.